



ICAO ENGINE nvPM EMISSIONS DATA SHEET

SUBSONIC ENGINES

ENGINE IDENTIFICATION: PW1525G BYPASS RATIO (-): 11.1
 UNIQUE ID NUMBER: 01P20PW182 PRESSURE RATIO π_{co} (-): 38.7
 COMBUSTOR: TALON X, Block-C
 ENGINE TYPE: TF RATED OUTPUT F_{oo} (kN): 108.5

REGULATORY DATA

| CHARACTERISTIC VALUES: | LTO _{mass} /F _{oo} (mg/kN) | LTO _{num} /F _{oo} (particles/kN) | NVPM MASS CONCENTRATION ($\mu\text{g}/\text{m}^3$) |
|--|---|---|---|
| LTO/F _{oo} AND MAX nvPM _{mass} | 15.3 | 4.06E+14 | 424 |
| AS % OF CAEP/10 LIMIT | - | - | 6.7 |
| AS % OF CAEP/11 LIMIT (InP) | 0.7 | 2.8 | |
| AS % OF CAEP/11 LIMIT (NT) | 3.0 | 6.6 | |

MEASURED DATA

| MODE | POWER SETTING (%F _{oo}) | TIME minutes | FUEL FLOW kg/s | EMISSIONS INDICES* | | NVPM MASS CONCENTRATION PEAK nvPM _{mass} ($\mu\text{g}/\text{m}^3$) |
|---|--------------------------------------|-----------------|-------------------|-------------------------------|-------------------------------------|--|
| | | | | EI _{mass} (mg/kg) | EI _{num} (particles/kg) | |
| TAKE-OFF | 100 | 0.7 | 0.788 | 12.9 | 1.88E+14 | |
| CLIMB OUT | 85 | 2.2 | 0.649 | 8.1 | 1.90E+14 | |
| APPROACH | 30 | 4.0 | 0.229 | 0.2 | 1.37E+13 | |
| IDLE | 7 | 26.0 | 0.076 | 0.5 | 7.10E+13 | |
| LTO TOTAL (kg, mg, number of particles) | | | 292 | 1190 | 3.17E+16 | - |
| NUMBER OF ENGINES | | | | 1 | 1 | 1 |
| NUMBER OF TESTS | | | | 3 | 3 | 3 |
| AVERAGE LTO/F _{oo} VALUES (mg/kN, particles/kN) | | | | 11.0 | 2.92E+14 | - |
| MAX EI VALUES (mg/kg, particles/kg) AND MAX MASS CONC. ($\mu\text{g}/\text{m}^3$) | | | | 12.9 | 2.02E+14 | 330 |

* Emissions Indices are corrected for thermophoretic loss and fuel hydrogen content

DATA FOR EMISSIONS INVENTORIES (ESTIMATIONS FOR ENGINE EXIT PLANE VALUES)

| MODE | POWER SETTING (%F _{oo}) | CORRECTED EMISSIONS INDICES | |
|-----------|--------------------------------------|----------------------------------|--|
| | | EI _{mass_sl} (mg/kg) | EI _{num_sl} (particles/kg) |
| TAKE-OFF | 100 | 16.2 | 6.99E+14 |
| CLIMB OUT | 85 | 10.9 | 9.00E+14 |
| APPROACH | 30 | 0.2 | 5.92E+13 |
| IDLE | 7 | 0.7 | 6.07E+14 |

AMBIENT CONDITIONS

| AMBIENT CONDITIONS | | | FUEL | |
|--------------------------------|--------|--------|-------------------------------|-------|
| | From | To | | |
| BAROMETER (kPa) | 102.0 | 103.3 | HEAT OF COMBUSTION (MJ/kg) | 43.21 |
| TEMPERATURE (K) | 272.0 | 278.1 | HYDROGEN CONTENT (%mass) | 13.98 |
| HUMIDITY (kg water/kg dry air) | 0.0012 | 0.0022 | AROMATICS CONTENT (%vol) | 18.1 |
| | | | NAPHTHALENE CONTENT (%vol) | 0.78 |
| | | | SULPHUR CONTENT (ppm by mass) | 553 |

MANUFACTURER: Pratt & Whitney
 TEST ORGANIZATION: Pratt & Whitney
 TEST LOCATION: Mirabel Aerospace Centre, Quebec, Canada
 TEST DATES: 25/03/2018-26/03/2018

REMARKS

1. Data from certification report PWA-12245-02
2. Block C combustor
3. nvPM levels in accordance with Annex 16 Vol. II, Chapter 4, Appendix 7 and Appendix 8.
4. PW1525G-3 has equivalent rated thrust levels and pressure ratios as PW1525G
5. PW1525G-3 has equivalent ICAO nvPM emissions data as the PW1525G

** DATA SUPERSEDED **

SEE FOLLOWING UID FOR REVISED DATA:

04P20PW195